

●ABSTRACT

There is provided an EPIR device which is excellent in mass productivity and high in practical utility.

The EPIR device includes a lower electrode layer, a CMR thin film layer and an upper electrode layer which are laminated in this order on any of various substrates. A Pt polycrystal thin film 10 forming the lower electrode layer includes columnar Pt crystal grains 10A, 10B, 10C, ... and over 90 % of these crystal grains is oriented to a (1 1 1) face. Columnar PCMO crystal grain groups 20A, 20B, 20C, ... are respectively locally grown epitaxially on the respective outermost surfaces of the Pt crystal grains 10A, 10B, 10C, Then, the crystal faces of the crystal grains included in the PCMO crystal grain groups 20A, 20B, 20C, ... and vertical in the substrate surface normal direction are any one of $(1\ 0\ 0)_p$, $(1\ 1\ 0)_p$ and $(1\ 1\ 1)_p$ planes.